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## **CHAPTER 2: MANAGEMENT ALTERNATIVES**

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This chapter describes and compares the alternatives and coordination needs for managing the rangeland resource on the Buck Springs Range Allotment. This section also presents the alternatives in comparative form, defining the differences between each alternative and providing a clear basis for choice by the decision maker and the public. Some of the information used to compare the alternatives is based upon the design (i.e., number of acres grazed and grazing strategy) and some of the information is based upon the environmental, social and economic effects of implementing each alternative (i.e., miles of riparian streams impacted by grazing).

### **ALTERNATIVE DEVELOPMENT**

The Mogollon Rim (previously Blue Ridge) Ranger District of the Coconino National Forest proposes actions to revise the allotment management plan for the Buck Springs Range Allotment. If selected by the deciding official, any action alternative considered within the framework of this assessment can be implemented without further NEPA documentation.

The actions are proposed to improve habitat for wildlife and plant species, consider the ranching lifestyle, and enhance range, watershed, and other ecosystem conditions.

See Appendix A for the maps of the alternatives and Appendix B for the tables of proposed improvements and project activities by alternatives.

The Proposed Action generated issues from both the interdisciplinary team and the public. These issues drove the development of alternatives to the Proposed Action and are summarized as follows:

1. Carrying capacity of the allotment and each alternative;
2. Grazing strategy and overuse of plants;
3. Economic feasibility;
4. Threatened, endangered, and sensitive species concerns.

Carrying capacity is analyzed for each alternative, and ties the number of animals to the acreage to be grazed. Individually, particular grazing strategies drove the development of Alternatives D and F. Economic feasibility is analyzed for each alternative, and is key to Alternatives E and G. The threatened, endangered, and sensitive species issues and the distribution of forage utilization issues were addressed at varying levels in all alternatives, and drove the development of Alternatives E and G. Two alternatives were dropped due to duplication with other alternatives and the high costs of improvements that are economically unfeasible.

## **Coordination and Implementation Practices**

Many of the activities that occur on the National Forest require internal coordination as well as coordination with regulatory agencies (both state and federal) in order to comply with laws and policies.

### **Cultural Resources**

The Mogollon Rim Ranger District consulted with the State Historic Preservation Office (SHPO) on the effects of ongoing grazing, and received concurrence of no effects to cultural resources. All archaeological sites in the project area will be protected from the effects of project activities.

### **Threatened and Endangered (T&E) species**

The Mogollon Rim Ranger District consulted with US Fish and Wildlife Service (FWS) on the impacts of the selected alternative on T&E wildlife, fish or plant species, and appropriate mitigation measures. The FWS determined that the project would not jeopardize the continued existence of threatened, endangered, or proposed species.

### **Migratory Birds**

In accordance with Executive Order 13186, the Forest Service evaluated the project with respect to migratory birds.

### **Noxious Weed Control**

Minimize disturbance to the existing native plant population during project implementation, and avoid introducing seeds of unwanted plants. Clean vehicles, equipment, and personal gear if in an infested area. Use only certified, weed-free seed to revegetate areas, and weed-free hay if hay is used as a mulch for projects. Conduct post-project implementation monitoring to insure no noxious weeds are introduced. Control or eliminate established populations of noxious weeds as allowed on the Coconino National Forest.

### **Arizona Department of Environmental Quality (ADEQ)**

Obtain water quality certification and implement Best Management Practices to maintain current water quality.

### **Best Management Practices to Comply with the Clean Water Act and to Promote Healthy Watershed Conditions**

The following project-specific Best Management Practices (BMPs) are designed to minimize the potential adverse effects of sedimentation and turbidity of downstream perennial waters. Unless monitoring proves to the contrary, implementation of the following

site specific Best Management Practices constitutes compliance with Arizona State and Federal Water Quality Standards (Forest Service Handbook 2509.22).

1. Monitor permittee compliance with the Allotment Management Plan, the Terms and Conditions of the grazing permit, and the Annual Operating Plan, throughout the grazing period of each year for the life of the permit. Compliance with the terms and conditions of the livestock grazing permit would be strictly enforced by the District Range Staff and District Ranger (Chapter 5. Monitoring Plan).
2. Manage livestock grazing at an intensity that would improve vegetative ground cover (primarily the litter component) to enhance soil function and to improve the quality and quantity of desirable vegetation. Graze each pasture in a planned sequence. Provide adequate rest during the plants' growing season to allow plants to become established, accumulate root reserves, set seed, grow undisturbed, and allow for accumulation of plant litter. Monitor key grazing areas to determine when cattle should be moved to prevent over-use (Chapter 5. Monitoring Plan). Design a planned grazing system to promote flexibility in the grazing program and to buffer the adverse effects of drought (Chapter 2. Management Alternatives).
3. Use salt to achieve livestock distribution objectives or to correct localized over-use by livestock grazing. Salt at a reasonable distance away from waters or natural congregating areas such as swales, drainages, riparian areas, and meadows (Terms and Conditions: 10-Year Term Grazing Permit, Annual Operating Plan, and Allotment Management Plan).
4. Implement seeding projects to maintain or improve vegetative ground cover in areas where soils are compacted and native seed is scarce, in areas where erosion is contributing sediment directly into a drainage channel, riparian area or a perennial stream channel, and in disturbed areas created by management activities. Provide a period of protection from livestock grazing until herbaceous vegetation is established and soil condition is satisfactory (Chapter 2. Management Alternatives).
5. Maintain existing range structural improvements, and install and maintain new range structural improvements as planned or needed, to allow for proper livestock control and distribution, control graze and rest periods and implement other livestock management techniques necessary to improve and/or maintain long-term soil productivity and water quality. Structural range improvements, such as corrals, troughs, trails, or storage tanks, should not be located in swales, drainages, riparian areas or meadows. Unneeded range improvements will be removed and the site rehabilitated, if needed (Chapter 2. Management Alternatives).

Site specific soil and water Best Management Practices by alternative are listed in Appendix D of this document.

## **ALTERNATIVES CONSIDERED IN DETAIL**

As indicated in Chapter 1, there have been lengthy discussions of concerns related to watershed conditions and grazing within the allotment. Chapter 3 discusses resource concerns associated with the present grazing management or no change as described in Alternative B. Another alternative required by NEPA, is the no grazing alternative (Alternative A). The original proposed action (Alternative C) was developed in consideration of desired condition statements developed through the collaborative discussions and was provided to the public in 1999. The permittee requested an opportunity to emphasize herding as a livestock tool, which was incorporated into Alternatives D and K. Concerns over impacts to headwater meadows and shallow drainages were addressed by resting the southern pastures in Alternative E. A request by the public to address overuse of plants through a rest-rotation strategy drove Alternative F. Concerns over federal expenses, and threatened and endangered species concerns resulted in Alternative G. Two alternatives that called for vast amounts of new fencing, were dropped from detailed study because other alternatives addressed the same issues with less fencing. Altogether, ten alternatives were considered in this analysis. The alternatives considered in detail are summarized in Table 1 at the end of this chapter. The effects of the alternatives are compared in Table 2.

Appendix A includes a map showing the allotment pastures and maps of each alternative. Appendix B indicates the improvements included in each alternative, which improvements must be in place prior to grazing each pasture, and who is responsible for each improvement.

The alternatives are consistent with the Coconino National Forest Land Management Plan and do not violate Federal, State, or local law. All applicable forest-wide and management area standards and guidelines have been incorporated.

### **Alternative A: No Grazing of Livestock**

The No Grazing Alternative would eliminate livestock grazing from the Allotment. There would be no activities associated with livestock grazing under this alternative, though some monitoring may take place, especially for elk use and general utilization rates of wildlife. Range improvements may be left in place, unless they create hazards for people or wildlife. This alternative proposes no actions and no expenditure of public funds. (See Appendix A, Maps 1 and 2).

Fences would be removed when they reach a state of decay that poses additional threats to people and wildlife. Over the 10-year period covered by this analysis, about 50% of the fencing would be removed.

### **Alternative B: Continue Current Management**

The Current Management Alternative is the continuation of current management (i.e., no change or no action alternative), which is guided year by year by permittee instructions through the Annual Operating Instructions (See Appendix A, Maps 1 and 3). Management has varied widely over the past 15 years, and has been influenced largely by Section 7

consultation (Endangered Species Act) for the past 9 years. Precipitation, permittee changes, and financial considerations have also affected the operations.

The range of livestock numbers stocked each year has fluctuated dramatically, from 100% of the permitted numbers in 1997 to 20% in 1998, 45% in 1999, 23% in 2000, and 40% in 2001. No livestock were on this allotment in 2002, due to concerns over resources during a severe drought. The trend has been to lower the allowable numbers to address threatened and endangered species concerns and on occasion for permittee convenience. Permitted numbers would not likely be reinstated without building safeguards to protect those species. In addition, management has included deferral and rest of certain pastures to address threatened and endangered species concerns in most years.

No wildlife-related projects would take place. The permittee and U.S Forest Service would share in the costs of all improvements.

### **Livestock Grazing**

- 1) Issue grazing permit for up to 746 cow/calf pairs (equivalent to 1065 yearlings) and 8 horses. The actual numbers allowed on the allotment each year would be specified in the Annual Operating Instructions (AOI). These numbers are likely to be much lower than permitted numbers. Recent Section 7 consultation has allowed the stocking of up to 645 yearlings (60%).
- 2) Continue the deferred-rest-rotation grazing system, with some pastures deferred on a yearly basis and other pastures rested, with season of use from May 15 to October 15 allowing for plant maintenance needs. When conditions are suitable, allow entry before May 15th so that livestock can utilize native grasses in the northern pastures, particularly the fescue, while the plants are still green, growing, and palatable. Most pastures are available for use, except the riparian pastures, though the Knolls Pasture has been rested for the past four years due to threatened species concerns (and eight of the past ten years), and is likely to continue to be rested. The pastures adjacent to the Mogollon Rim would not be grazed until range readiness allows, as these pastures tend to green-up later than the northern pastures.
- 3) Collect additional forage production data by pasture to help set annual stocking rates. Variables that are used to set annual stocking rates include threatened and endangered species concerns, prior wildlife utilization, rainfall, forage production, control of livestock, and depth of soils. Lower than permitted numbers would also be set for resource protection during drought or if forage production levels are lower than expected. Capacity takes into account forage needs of wildlife.
- 4) Use current fencing, livestock trailing, water tanks, and cattleguards to manage the distribution of livestock grazing and utilization of upland native species, to avoid meadows and riparian areas, and to increase livestock control in sensitive areas.

- 5) Manage livestock and wildlife to achieve utilization levels set on an annual basis. The following utilizations have been derived through AOI direction agreed to in consultation with USFWS. Allow 25% use on native species in Rim pastures with headwater meadows, 30% utilization levels in pastures with access to secondary drainages and in Mexican spotted owl areas, and 40% utilization levels in upland pastures with no riparian concerns and outside of Mexican spotted owl areas. These levels are subject to further adjustment through the AOI and consultation. A 5% increase in utilization may be allowed during years of above average precipitation. Higher utilization of non-native species such as orchard grass would be allowed to facilitate the replacement of introduced grasses with diverse native vegetation. Manage areas dominated by Arizona fescue to retain plant vigor and health and to increase diversity of other native species in all pastures, especially North, North Battleground, and North Pinchot Pastures.
- 6) Protect Threatened and Endangered Species through instructions in AOIs. Primary means of protection is through rest of pastures, reduction of livestock numbers and shortening the duration of grazing.
- 7) Implement all applicable mitigation measures through the AOIs.

### **Alternative C: Proposed Action**

This alternative continues the deferred-rest-rotation strategy and includes fences to exclude livestock access to sensitive spinedace habitat and headwater meadows (See Appendix A, Maps 1 and 4). All pastures are used with the exception of the southern half of Knolls Pasture. Three pastures would be split to improve livestock distribution, resulting in three additional pastures. Appendix B lists the proposed improvements and shows which must be in place prior to livestock use of the pastures. The permittee and U.S Forest Service would share in the costs of all improvements.

#### **Livestock Grazing**

- 1) Issue grazing permit for up to 669 cow/calf pairs (equivalent to 955 yearlings, or 90% of current permitted numbers), and 8 horses.
- 2) Continue the deferred-rest-rotation grazing system, with pastures deferred on a yearly basis and season of use from May 15 to October 15 allowing for plant maintenance needs. When conditions are suitable, allow entry before May 15th so that livestock can utilize native grasses in the northern pastures, particularly the fescue, while the plants are still green, growing, and palatable. The pastures adjacent to the Rim would not be grazed until range readiness allows, as these pastures tend to green-up later than the northern pastures.
- 3) Collect additional forage production data by pasture to ensure that permitted numbers continue to be within carrying capacity. Adjust annual numbers to available resources through the AOI. Variables that are used to set annual stocking rates include threatened and endangered species concerns, prior wildlife utilization, rainfall, forage production,

control of livestock, and depth of soils. Lower numbers would be set for resource protection during drought or if production levels are lower than expected. Capacity takes into account the forage needs of wildlife.

- 4) Use fencing, livestock trailing, waters, cattleguard, and herding of livestock, to manage the distribution of livestock grazing and utilization of upland native species, to avoid meadows and riparian areas, and to increase livestock control in sensitive areas. All proposed fences are four-strand barbed wire with a smooth bottom wire, unless otherwise noted. Specifically we propose to:
  - a) Improve livestock forage utilization in the North Pasture by constructing 1.1 miles of fence and one cattleguard to create a new pasture in the southern portion of the pasture.
  - b) Eliminate access to Leonard Canyon in the Dines Pasture with 1.6 miles of fence.
  - c) Eliminate livestock access to riparian areas and spinedace habitat in the Knolls Pasture by constructing 0.8 miles of fence along Leonard Canyon, 1.9 miles of fence along the north side of Buck Springs Canyon and 1.9 miles of fence along the south side of Buck Springs Canyon, and 0.3 mile of fence with cattleguard to exclude livestock from West Leonard Canyon and the southern 1/2 of the Knolls Pasture.
  - d) Build approximately 0.2 mile of fence in the McClintock Pasture and add one cattleguard to connect the Upper and Lower Buck Springs riparian pastures. Construct one new earthen tank in McClintock Pasture to substitute for access to water in Buck Springs Canyon.
  - e) Improve livestock forage utilization in the North Battleground Pasture by constructing 1.7 and reconstructing 1.1 miles of fence, and one cattleguard to create two pastures.
  - f) Reconstruct and move the east boundary fence of the McCarty Pasture (1.1 miles).
  - g) Complete fence at Turkey Pen to control livestock movement between North and South Battleground pastures (0.1 mile).
  - h) Manage grazing in meadows to achieve sponge effect, improve vegetative ground cover and bank stability, and improve flow regimes using a combination of herding, deferred grazing, rest-rotation, and total exclusion. Establish livestock exclosures to promote formation of meadow sponge effect in Holder Meadow (130 ac), East Bear Meadow (85 ac), West Bear Meadow (110 ac), Upper Barbershop (1,000 ac), Houston Draw (335 ac), McClintock Springs Meadow (90 ac), and Bill McClintock Meadow (150 ac). Acres are exclosure acres, not meadow acres. Use exclosures to monitor forage use by livestock and elk. Construct a small sucker rod exclosure around Fred Haught Springs (7 ac).

- i) Maintain existing elk exclosures (Buck Springs, Houston Draw, Merritt Draw, General Springs, McClintock Springs). (FS and AGFD responsibility)
  - j) Use herding or riding as a supplemental tool to control livestock movements and to keep them out of sensitive riparian areas, sensitive drainages, and headwater meadows.
  - k) Up to two corrals, three waterlots, and one drylot may be constructed or reconstructed to facilitate loading, unloading, herding and gathering of livestock.
- 5) Manage livestock and wildlife to achieve maximum site-specific utilization levels of 25% on native species in Rim pastures with headwater meadows, 30% in pastures with access to secondary drainages and in Mexican spotted owl areas, and 40% maximum utilization in upland pastures with no riparian concerns and outside of Mexican spotted owl areas. An increase of 5% may be allowed during years of above average precipitation. Higher utilization of non-native species such as orchard grass would be allowed to facilitate replacement with diverse native vegetation.
- 6) Small sections of several level 3 roads would be closed where new fences cross the roads. A total of 1.6 miles would be closed on the following Forest Roads: 9713G, 9737R, 9714E, and 9737Y.
- 7) Implement all applicable mitigation measures through the AOIs.
- 8) Maintain existing and new improvements as needed.

### **Soils and Vegetation**

- 1) Manage ungulates to maintain vegetative ground cover in the uplands. Throughout the allotment, manage for increased utilization levels on non-native species such as orchard-grass to reduce vigor and facilitate replacement of non-native grasses with native grasses, forbs, and shrubs. Manage areas dominated by Arizona fescue to retain plant vigor and health and to increase diversity of other native species in North, North Battleground, North Pinchot, and McCarty Pastures.
- 2) Precommercially thin approximately 1,500 acres of dense seedling/sapling/pole stands to allow for ease of driving livestock along FR137 in the Horse and Moonshine Pastures, and for gathering livestock in the Burn and North Battleground Pastures.

### **Wildlife**

- 1) Select up to ten suitable stock tanks for leopard frogs and fence off portions of the tanks (<1/3 of tank). (FS responsibility)



## **Alternative D: Herding Emphasis (developed in response to issue #2)**

This alternative relies heavily on herding of livestock to control access to sensitive areas such as headwater meadows and riparian areas, and to utilize low stress livestock handling techniques. All pastures (except riparian pastures) are available for grazing, though the southern half of Knolls Pasture would only be used if herding is highly effective at keeping livestock out of meadows and riparian areas. Fences separating these pastures from those that would not be used would be regularly maintained, primarily boundary fences between the north and south pastures, and between South Battleground and South Pinchot Pastures (See Appendix A, Maps 1 and 5). If the permittee is unable to “herd” the cattle temporarily, livestock grazing would be restricted to certain pastures that have fewer headwater meadow and riparian area concerns.

Some new fences are proposed to exclude all livestock from critical spinedace locations and habitats, and to facilitate herding of the livestock. Other current fences not needed for spinedace protection or described in the previous paragraph, may not be maintained on a regular schedule, and may deteriorate. A high number of waterlots, corrals, and training pastures are proposed to facilitate control of livestock, but all may not be constructed. No pastures would be split. Herding of livestock is expected to improve livestock distribution and reduce problems of over- and under-utilization. Appendix B lists the proposed improvements and shows which must be in place prior to livestock use of the pastures. The permittee and U.S Forest Service would share in the costs of all improvements.

### **Livestock Grazing**

- 1) Reissue grazing permit for up to 780 cow/calf pairs (equivalent to 1114 yearlings, or 105% permitted numbers), and 8 horses.
- 2) Continue the deferred-rest-rotation grazing system, with pastures deferred on a yearly basis and season of use from May 15 to October 15 allowing for plant maintenance needs. When conditions are suitable, allow entry before May 15th so that livestock can utilize native grasses in the northern pastures, particularly the fescue, while the plants are still green, growing, and palatable. The pastures adjacent to the Rim would not be grazed until range readiness allows, as these pastures tend to green-up later than the northern pastures.
- 3) Collect additional forage production and utilization data by pasture to ensure that permitted numbers continue to be within carrying capacity. Adjust annual numbers to resources through the AOI. Variables that are used to set annual stocking rates include threatened and endangered species concerns, prior wildlife utilization, rainfall, forage production, control of livestock, and depth of soils. Lower numbers would be set for resource protection during drought or if production levels are lower than expected. Capacity takes into account the forage needs of wildlife.
- 4) Use herding of livestock as the primary means to manage the distribution of livestock grazing and utilization of upland native species, to avoid meadows and riparian areas,

and to increase livestock control in sensitive areas. Use minimal fencing, waters, and cattleguards to tighten control in highly sensitive areas. All proposed fences are four-strand barbed with a smooth bottom wire, unless otherwise noted. Specifically we propose to:

- a) Eliminate access to Leonard Canyon in the Dines Pasture with 1.6 miles of fence.
- b) Eliminate livestock access to spinedace habitat in the Knolls Pasture by constructing 0.8 miles of fence along Leonard Canyon, 1.9 miles of fence north of Buck Springs Canyon, and 0.4 mile of fence adjacent to Leonard Canyon downstream of Knoll Lake. Use herding to keep livestock out of the southern 1/2 of the pasture, south of West Leonard Canyon. If herding of livestock is successful in controlling livestock without fences, and adequate forage is available, the southern 1/2 of Knolls Pasture may be used in the future.
- c) Complete fence at Turkey Pen to control livestock movement between North and South Battleground pastures (0.1 mile).
- d) Reconstruct the north boundary fence of McCarty Pasture that serves as a lane to access the northern portion of North Battleground Pasture north of the Reservoir. Use herding and riders to drive livestock from Jumbo Pastures along this lane.
- e) Construct a drift fence for 0.1 miles in South Battleground Pasture to funnel livestock away from General Springs Cabin and sensitive areas.
- f) Construct drift fences at entry trails to meadows to reduce access by livestock at West Bear Meadow and Upper Barbershop Canyon. Construct livestock exclosures at Holder Meadow (130 ac), upper Houston Draw (160 ac), and Bill McClintock Meadow (150 ac). Construct a 0.1 acre pipe and sucker rod exclosure around Aspen Springs.
- g) Maintain existing and proposed exclosures (Buck Springs, Houston Draw, Merritt Draw, General Springs, McClintock Springs) for monitoring elk and livestock use of headwater meadows and riparian areas. (FS and AGFD responsibility)
- h) Use cowboys and dogs to "herd" the cattle in one or more units as a tool to control livestock movements and to keep them out of sensitive riparian areas, sensitive drainages, and headwater meadows. Move the livestock as needed to avoid sensitive areas, limit utilization on individual plants, and obtain more even grazing patterns. However, livestock may pass through riparian areas and meadows if needed to achieve herding objectives. Allow the use of lead herd animals to facilitate livestock movements.
- i) Establish small "training pastures" to be used early in the season to train the livestock as a herding unit. These pastures would be approximately 300 acres each, and would be constructed in the North Jumbo (2), North Pinchot (at south end), and Burn (NE

corner) Pastures (2.8 miles of fence). Limestone, South Jumbo, and Dines Pastures may also be used as training areas, though Dines would not be used in years of low precipitation. Utilization may be higher in the training areas, with allowable use up to 60%, except Dines Pasture which has a maximum utilization of 40%. Areas must have 22 months of rest before reuse. One of the training pastures may be used for a horse pasture.

- j) If for any reason, the permittee is temporarily unable to "herd" the cattle, livestock grazing strategy would revert to current method of deferred-rest-rotation and would be restricted to the following pastures: North, North Pinchot, North piece of Knolls (north of Buck Springs Canyon), North and South Jumbo, North Battleground, McCarty, South Battleground, Moonshine, Horse, Dines, and Burn Pastures. If herding is effective as a strategy, but is ineffective in a particular pasture, that pasture would be taken out of the rotation until herding or other methods are proven effective at controlling livestock distribution. These changes and solutions would be specified in the AOIs.
  - k) Some of the existing fences must be maintained, specifically between the northern and southern pastures, and exterior allotment fences, between Knolls and McClintock Pastures, and between South Battleground and South Pinchot.
  - l) Up to three corrals, twelve waterlots, and six drylots may be constructed or reconstructed to facilitate loading, unloading, and gathering of livestock.
- 5) Manage livestock to achieve maximum site-specific utilization levels of 25% (includes wildlife use) on headwater native species meadows, 30% in secondary drainages and in Mexican spotted owl areas and northern goshawk PFAs. If levels are above these levels in sensitive areas due solely to wildlife, livestock may remain in the pasture, as long as they can be kept out of the sensitive areas and do not contribute to utilization in those areas. Utilization levels of 40% are allowable in other areas of all pastures. An increase of 5% in utilization may be allowed during years of above average precipitation. Higher utilization of non-native species such as orchard grass would be allowed to facilitate replacement with diverse native vegetation.
  - 6) Small sections of several level 3 roads would be closed where new fences cross the roads. A total of 1.2 miles would be closed on the following Forest Roads: 9713G, 9737R, 9714E.
  - 7) Implement all applicable mitigation through AOIs.
  - 8) Maintain existing and new improvements as needed.

### **Soils and Vegetation**

- 1) Manage ungulates to maintain vegetative ground cover in the uplands. Throughout the allotment, manage for increased utilization levels on non-native species such as orchard-

grass to reduce vigor and facilitate replacement of non-native grasses with native grasses, forbs, and shrubs. Manage areas dominated by Arizona fescue to retain plant vigor and health and to increase diversity of other native species in all pastures, especially the North, North Battleground, North Pinchot, and McCarty Pastures.

- 2) Precommercially thin approximately 1,000 acres of dense seedling/sapling/pole stands to allow for ease of driving livestock along FR137 in the Horse and Moonshine Pastures, and for gathering livestock in the Burn and North Battleground Pastures.

### **Wildlife**

- 1) Select up to six suitable stock tanks for leopard frogs and fence off portions of the tanks (<1/3 of tank). (FS responsibility)

### **Alternative E: Northern Pastures Emphasis (issue #4)**

This alternative continues the deferred-rotation grazing scheme while primarily using the northern pastures of the allotment to provide maximum protection to sensitive riparian systems and to recover the Little Colorado spinedace. These pastures do not include major headwater meadows, and the topography restricts livestock access to sensitive riparian drainages. Additional structures needed to protect meadows and riparian areas would be constructed. However, livestock would have some access to drainages that are not overly steep. The pastures used would be: North, North Battleground, North Pinchot, McCarty, North Jumbo, South Jumbo, Burn, Horse, Dines, Moonshine, and South Battleground Pastures; Knolls Pasture north of Buck Springs Canyon, and the northern portion of the South Pinchot Pasture. The North Pasture and the North Battleground Pasture would be split, creating two additional pastures and improving livestock distribution in those pastures. (See Appendix A, Maps 1 and 6).

The southern pastures typically include headwater meadows and riparian drainages that are easily accessed by livestock. These pastures would be excluded, and include Knolls (south of Buck Springs Canyon), North McClintock, McClintock, and the southern portion of South Pinchot.

Fences critical to this alternative are those fences necessary to protect Little Colorado spinedace habitat (identified in Appendix B). The critical fences within each pasture must be constructed before each individual pasture is available for grazing. The Forest Service would provide materials for those fences and corrals required for the use of pastures needed for a viable rest-rotation strategy (Pastures North Pinchot, North Battleground, South Battleground, North, and Forest Service). The permittee is responsible for construction and maintenance of these fences. The permittee would be responsible for the temporary electric fence at General Springs whenever the South Battleground Pasture is used. The permittee would be responsible for the materials and labor for other critical fences, in order to use additional pastures (McCarty, Dines, South Pinchot, and Northern Knolls). Appendix B lists the proposed improvements and shows which must be in place prior to livestock use of these pastures and who is responsible for construction.

## **Livestock Grazing**

- 1) Issue grazing permit for up to 531 cow/calf pairs (equivalent to 758 yearlings, or 71% of current permitted numbers), and 8 horses.
- 2) Continue the deferred-rest-rotation grazing system, with pastures deferred on a yearly basis and season of use from May 15 to October 15 allowing for plant maintenance needs. When conditions are suitable, allow entry before May 15th so that livestock can utilize native grasses in the northern pastures, particularly the fescue, while the plants are still green, growing, and palatable. The South Battleground Pasture would not be grazed until range readiness allows.
- 3) Collect additional forage production and utilization data by pasture to ensure that permitted numbers continue to be within carrying capacity. Adjust annual numbers to resources through the AOI. Variables that are used to set annual stocking rates include threatened and endangered species concerns, prior wildlife utilization, rainfall, forage production, control of livestock, and depth of soils. Lower numbers would be set for resource protection during drought or if production levels are lower than expected. Capacity takes into account the forage needs of wildlife.
- 4) Use fencing, livestock trailing, control of waters, and cattleguards to manage the distribution of livestock grazing and utilization of upland native species, to avoid meadows and riparian areas, and to increase livestock control in sensitive areas. All proposed fences are four-strand barbed with smooth bottom wire, unless otherwise noted. Specifically we propose to:
  - a) Improve livestock distribution and forage utilization in the North Pasture by constructing 1.1 miles of fence and one cattleguard at FR321 to create a new pasture in the southern portion of North. Construct short drift fence (0.5 mile) and cattleguard on FR96 to spit the remainder into east and west pastures, making three pastures from one.
  - b) Construct a drift fence along Yeager Canyon in Forest Service Pasture (0.3 mile).
  - c) Eliminate access to Leonard Canyon in the Dines Pasture with 1.6 miles of fence.
  - d) Create a new pasture from the portion of Knolls Pasture north of Buck Springs, by constructing 0.8 mile of fence along Leonard Canyon and 1.9 miles of fence along Buck Springs Canyon. The remainder of the Knolls Pasture would be rested.
  - e) Construct 1.7 miles of fence from north side of Burn Pasture north and reconstruct 1.2 miles of boundary fence, with one cattleguard on FR123 to split the North Battleground Pasture into 2 pastures. Build a waterlot at Gobbler Tank.

- f) Complete the fence at Turkey Pen to control livestock movement between North and South Battleground Pastures (0.1 mile).
  - g) Construct a 3.2-mile fence along south side of East Clear Creek in McCarty Pasture to control livestock access; tie the fence into Jones Crossing Fence. Reconstruct the north fence along the boundary of McCarty Pasture that serves as a lane to access the northern portion of North Battleground Pasture north of the Reservoir. Reconstruct and move the east boundary fence of the McCarty Pasture.
  - h) Construct an enclosure around meadow system in southwest portion of the South Battleground Pasture (1.8 miles), with two cattleguards.
  - i) Construct a drift fence to funnel livestock away from General Springs (0.1 mile). Construct a temporary electric fence at General Springs Cabin to keep livestock away from sensitive areas, when livestock are in the South Battleground Pasture.
  - j) Construct a 0.5 mile division fence and a cattleguard in the South Pinchot Pasture from East Bear Canyon to the riparian pasture at Merritt, to allow use of the northern portion of the pasture. The portion south of this fence, and between Bear Canyon and East Bear Canyon, would not be used by livestock.
  - k) Establish livestock enclosures to promote formation of meadow sponge effect around Fred Haught Springs (7 ac). Use enclosures to monitor forage use by livestock. Construct sucker road enclosures around Pinchot and Aspen Springs. Build 0.8 mile of fence from Aspen Pasture to Bear Canyon to create a small enclosure in Houston Draw. Construct a livestock enclosure around upper Houston Draw (1.4 miles).
  - l) Maintain existing and proposed elk enclosures (Buck Springs, Houston Draw, Merritt Draw, General Springs, McClintock Springs). (FS and AGFD responsibility)
  - m) Up to four corrals, six waterlots, and two drylots may be constructed or reconstructed to facilitate loading, unloading, and gathering of livestock.
  - n) Movement of livestock between pastures requires long drives using fences, topography, and riders to contain livestock. Drives would not take place in areas with high risk meadows, and generally would take place along a North Route. Temporary electric fence would be used to exclude East Clear Creek and traffic control measures would be required.
  - o) Take the Aspen Horse Pasture out of the rotation from cattle grazing, and construct a fence (holding pasture) to create a horse pasture in very south of North Pinchot pasture. The corrals at Aspen Springs can be used for horses only.
- 5) Manage livestock and wildlife to achieve maximum site-specific utilization levels of 30% in pastures with access to secondary drainages (Moonshine, North Knolls, Burn, Horse, Dines, North Pinchot, South Battleground, North, North Battleground, McCarty)

and in Mexican spotted owl areas, and maximum levels of 40% in upland pastures with no riparian concerns (North Jumbo, South Jumbo) and outside of Mexican spotted owl areas. An increase of 5% utilization may be allowed during years of above average precipitation. Higher utilization of non-native species such as orchard grass would be allowed to facilitate replacement with diverse native vegetation.

- 6) A small section of one level 3 road would be closed where a new fence crosses the road. A total of 0.2 mile would be closed on the following Forest Road: 9713G.
- 7) Implement all applicable mitigation through the AOIs.
- 8) Maintain existing and new improvements as needed.

### **Soils and Vegetation**

- 1) Manage ungulates to maintain vegetative ground cover in the uplands. Throughout the allotment, manage for increased utilization levels on non-native species such as orchard-grass to reduce vigor and facilitate replacement of non-native grasses with native grasses, forbs, and shrubs. Manage areas dominated by Arizona fescue to retain plant vigor and health and to increase diversity of other native species in all pastures, especially the North, North Battleground, North Pinchot, and McCarty Pastures.
- 2) Precommercially thin approximately 200 acres of dense seedling/sapling/pole stands to allow for ease of driving livestock along FR137 in the Horse and Moonshine Pastures, and in the Burn and North Battleground Pastures.

### **Wildlife**

- 1) Select up to three suitable stock tanks for leopard frogs in the northern pastures and fence off portions of the tanks (<1/3 of tank). (FS responsibility)

### **Alternative F: Rest-Rotation (issue #2)**

This alternative splits the allotment into an east management unit and a west management unit. Each unit is grazed every other year, allowing approximately 1/2 of the allotment to be rested each year. The large amount of improvements (fences, waterlots, corrals, cattleguards) would ensure protection for the Little Colorado spinedace and its habitat, and provide more control over the distribution of livestock. Pasture splits would result in six additional pastures, reducing problems of over- and under-utilization and allowing for one year of rest in two years (See Appendix A, Maps 1 and 7). Appendix B lists the proposed improvements and shows which must be in place prior to livestock use of the pastures. The permittee and U.S. Forest Service would share in the costs of all improvements.

## **Livestock Grazing**

- 1) Issue grazing permit for up to 407 cow/calf pairs (equivalent to 581 yearlings, or 55% of current permit), and 8 horses while cattle are on the Battleground Unit, and for up to 356 cow/calf pairs (equivalent to 508 yearlings, or 48% of current permit) and 8 horses while cattle are on the Buck Springs Unit. Use the Annual Operating Instructions to adjust numbers on an annual basis, depending on resource conditions.
- 2) Establish a rest-rotation grazing system, with one-half of the pastures rested on a yearly basis. Season of use is from May 15 to October 15 allowing for plant maintenance needs. When conditions are suitable, allow entry before May 15th so that livestock can utilize native grasses in the northern pastures, particularly the fescue, while the plants are still green, growing, and palatable. The pastures adjacent to the Rim would not be grazed until range readiness allows, as these pastures tend to green-up later than the northern pastures.
  - a) Year 1 pastures: North, Dines, north portion of Knolls, Moonshine, McClintock, North McClintock, Horse.
  - b) Year 2 pastures: North Jumbo, South Jumbo, McCarty, N. Battleground, S. Battleground, Burn, N. Pinchot, S. Pinchot.
- 3) Collect additional forage production data by pasture to ensure that permitted numbers continue to be within carrying capacity. Adjust annual numbers to resources through the AOI. Variables that are used to set annual stocking rates include threatened and endangered species concerns, prior wildlife utilization, rainfall, forage production, control of livestock, and depth of soils. Lower numbers would be set for resource protection during drought or if production levels are lower than expected. Capacity takes into account the forage needs of wildlife.
- 4) Use fencing, livestock trailing, control of waters, and cattleguards to manage the distribution of livestock grazing and utilization of upland native species, to avoid meadows and riparian areas, and to increase livestock control in sensitive areas. All proposed fences are four-strand barbed with smooth bottom wire, unless otherwise noted. Specifically we propose to:
  - a) Improve livestock forage utilization in the North by constructing 1.1 miles of fence and one cattleguard on FR321 to create a new pasture in the southern portion of North, and installing a short drift fence (0.5 mile) and cattleguard on FR96 at Yeager Canyon to create east and west pastures.
  - b) Construct a drift fence along Yeager Canyon along southern portion of the North Pasture (area considered the Forest Service Pasture) (0.3 mile).
  - c) Eliminate access to Leonard Canyon in the Dines Pasture with 1.6 miles of fence.



- d) Eliminate livestock access to riparian areas and spinedace habitat in the Knolls Pasture by constructing 0.8 mile of fence along Leonard Canyon, 1.9 miles of fence along the north side of Buck Springs Canyon and 1.9 miles of fence along the south side of Buck Springs Canyon, and 0.3 mile of fence with cattleguard (FR161B) to exclude livestock from West Leonard Canyon and the southern 1/2 of the Knolls Pasture.
- e) Build approximately 0.2 mile of fence and add one cattleguard to connect the Upper and Lower Buck Springs riparian pastures. Construct one new earthen tank in McClintock Pasture to substitute for access to water below the weir in Buck Springs Canyon.
- f) Divide the North Pinchot pasture into 2 pastures with 2.5 miles of fence from bluff above East Clear Creek south along FR95 west to Houston Draw enclosure. Place a cattleguard on FR95D, and build a waterlot at 95D Tank.
- g) Divide the North Battleground Pasture into two pastures with 1.7 miles of fence from the north side of the Burn Pasture north and reconstruct 1.1 miles of the McCarty Pasture, with one cattleguard on FR123. Install a waterlot at Gobbler Tank.
- h) Complete fence at Turkey Pen to control livestock movement between North and South Battleground Pastures (0.1 mile).
- i) Construct a 3.2-mile fence along south side of East Clear Creek in McCarty Pasture to control livestock access; tie the fence into Jones Crossing Fence. Reconstruct and move the east boundary fence. Reconstruct the north boundary fence that serves as a lane to access the northern portion of the North Battleground Pasture.
- j) Divide South Battleground Pasture into 2 pastures with a division fence (3.2 miles of fence, see map) from the southeast corner of the Burn Pasture, crosses General Springs Canyon to Fred Haught Springs, south to Bear Canyon. This division requires 1 cattleguard on FR95. Three waterlots are proposed.
- k) Construct a drift fence in South Battleground Pasture to funnel livestock away from General Springs Cabin (0.1 mile). Construct a temporary electric fence at General Springs Cabin to keep livestock away from sensitive areas, when livestock are in the South Battleground Pasture (permittee responsibility).
- l) Divide South Pinchot into 2 pastures by constructing 2 division fences (1.65 miles of fence): 1) from FR139 cattleguard northwest to Bear Canyon; 2) from Merritt enclosure to FR139 cattleguard with a waterlot. One cattleguard is required at FR139.
- m) Establish livestock exclosures to promote formation of meadow sponge effect in Holder Meadow (130 ac), East Bear Meadow (85 ac), West Bear Meadow (110 ac), upper Houston Draw (335 ac), lower Houston Draw (180 ac), and Bill McClintock

Meadow (150 ac). Construct drift fences at entry trails to Upper Barbershop Canyon to reduce access by livestock. Exclude livestock from Fred Haught Springs (7 ac). Use exclosures to monitor forage use by livestock and wildlife. Install watergaps across Bear Canyon. Install cattleguards on FR95, FR95B, and FR139A.

- n) Construct pipe and rod exclosures around Pinchot and Aspen Springs to exclude livestock and elk.
  - o) Construct a cattle exclosure around the existing elk exclosure at McClintock Spring (cattle = 90 ac, elk = 1 ac). Maintain existing exclosures (Buck Springs, Houston Draw, Merritt Draw, General Springs, McClintock Springs) for monitoring elk and livestock use of headwater meadows and riparian areas. (elk exclosures are FS responsibility)
  - p) Up to four corrals, seven waterlots, and three drylots may be constructed or reconstructed to provide options for loading and unloading livestock.
- 5) Manage livestock and wildlife to achieve maximum site-specific utilization levels of 30% on native species in headwater meadows in Rim pastures. Maximum utilization levels of 35% are acceptable in pastures with access to secondary drainages and in Mexican spotted owl areas, and levels of 45% utilization are allowed in North and South Jumbo Pastures, which have no riparian concerns and are outside of Mexican spotted owl areas. These higher levels are allowed when pastures are rested one year in two. An increase of 5% utilization may be allowed during years of above normal precipitation. Manage areas dominated by Arizona fescue to retain plant vigor and health and to increase diversity of other native species. Higher utilization of Arizona fescue and non-native species such as orchard grass would be allowed to facilitate replacement with diverse native vegetation.
- 6) Small sections of several level 3 roads would be closed where new fences cross the roads. A total of 1.6 miles would be closed on the following Forest Roads: 9713G, 9737R, and 9714E.
- 7) Implement all applicable mitigation measures through the AOIs.
- 8) Maintain existing and new improvements as needed.

## **Soils and Vegetation**

- 1) Manage ungulates to maintain vegetative ground cover in the uplands. Throughout the allotment, manage for increased utilization levels on non-native species such as orchard-grass to reduce vigor and facilitate replacement of non-native grasses with native grasses, forbs, and shrubs. Manage areas dominated by Arizona fescue to retain plant vigor and health and to increase diversity of other native species in North, North Battleground, North Pinchot, and McCarty Pastures.

- 2) Precommercially thin approximately 200 acres of dense seedling/sapling/pole stands to allow for ease of driving livestock along FR137 in the Horse and Moonshine Pastures, and in the Burn and North Battleground Pastures.

### **Wildlife**

- 1) Select up to eight suitable stock tanks for leopard frogs and fence off portions of the tanks (<1/3 of tank). (FS responsibility)

### **Alternative G: Northern Pasture Emphasis with Rest Rotation -- Preferred Alternative (issues #3 and #4)**

This alternative primarily uses the northern pastures of the allotment, with a number of structures that are needed to protect meadows and riparian areas for recovering watershed function and the Little Colorado spinedace. These pastures generally do not include headwater meadows, and the topography limits livestock access to sensitive riparian drainages. However, livestock would have some access to the more shallow drainages that are not overly steep. The pastures allowed to be grazed by livestock would be: North, North Battleground, North Pinchot, McCarty, North Jumbo, South Jumbo, Burn, Horse, Dines, Moonshine, South Battleground Pastures, Knolls Pasture north of Buck Springs Canyon; and the northern portion of the South Pinchot Pasture (See Appendix A, Maps 1 and 8).

The allotment would also be run as a rest-rotation strategy, with pastures grazed one year in two. The allotment would be managed with an east management unit called the Buck Springs Unit (North, Horse, Dines, Knolls, North McClintock and Moonshine Pastures), and a west management unit called the Battleground Unit (North Jumbo, South Jumbo, McCarty, North Battleground, North Pinchot, Burn, South Pinchot, and South Battleground Pastures). The proposed improvements (fences, waterlots, corrals, cattleguards) are the minimum number required to provide protection for the riparian areas and associated wildlife species (i.e. Little Colorado spinedace). One pasture split would rely on a drift fence, resulting in one additional pasture, while two pastures would be made smaller. This alternative was developed for additional protection and enhancement of riparian area health and Little Colorado spinedace habitat, and to transfer some of the costs to the permittee.

The southern pastures typically include headwater meadows and shallow riparian drainages that are easily accessed by livestock. These pastures would be excluded from livestock grazing, and include Knolls (south of Buck Springs Canyon), McClintock, and the southern portion of South Pinchot.

Fences critical to this alternative are those fences necessary to protect Little Colorado spinedace habitat (identified in Appendix B). The critical fences within each pasture must be constructed before each individual pasture is available for grazing. The Forest Service would provide materials for those fences and corrals required for the use of pastures needed for a viable rest-rotation strategy (Pastures North Pinchot, North Battleground, South Battleground, North, and Forest Service). The permittee is responsible for construction and

maintenance of these fences. The permittee would be responsible for the temporary electric fence at General Springs whenever the South Battleground Pasture is used. The permittee would be responsible for the materials and labor for other critical fences, in order to use additional pastures (McCarty, Dines, South Pinchot, and Northern Knolls). Appendix B lists the proposed improvements, indicates which must be in place prior to livestock use of these pastures, and who is responsible for construction.

### **Livestock Grazing**

- 1) Issue grazing permit for up to 393 cow/calf pairs (equivalent to 561 yearlings, or 53% of current permitted numbers), and 8 horses while cattle are on the Battleground Unit, and for up to 250 cow/calf pairs (equivalent to 357 yearlings, or 34% of current permitted numbers), and 8 horses while cattle are in the Buck Springs Unit. These numbers are reasonable for the Western (Battleground) Management Unit, while fewer numbers would be allowed on the Eastern (Buck Springs) Management Unit (34% or 250 cow/calf pairs or 357 yearlings, and 8 horses). The permitted numbers (stated above) for each Management Unit correspond with the capability to graze all pastures listed for each respective year in 2a and 2b below. The number of livestock permitted to graze any given year would be based on improvements implemented to allow pasture availability for the year and Management Unit. Adjustments in annual numbers would be specified in each year's AOI.
- 2) Establish a rest- rotation grazing system, with approximately 1/2 of the pastures rested on a yearly basis. Season of use is from May 15 to October 15 allowing for plant maintenance needs. When conditions are suitable, allow entry before May 15th so that livestock can utilize native grasses in the northern pastures, particularly the fescue, while the plants are still green, growing, and palatable. The pastures would not be grazed until range readiness allows.
  - a) Year 1 pastures: North, Dines, north portion of Knolls, North McClintock, Moonshine, Horse Pastures.
  - b) Year 2 pastures: North Jumbo, South Jumbo, McCarty, N. Battleground, S. Battleground, Burn, N. Pinchot, northern half of S. Pinchot Pastures.

Pastures with critical fences for Little Colorado spinedace protection would not be grazed prior to construction or annual maintenance. Pastures would be added into the grazing landbase as fences are constructed. The permittee would be required to maintain these critical fences both before the grazing season and during the season.

- 3) Collect additional forage production and utilization data by pasture to ensure that permitted numbers continue to be within carrying capacity. Adjust annual numbers to resources through the AOIs. Variables that are used to set annual stocking rates include threatened and endangered species concerns, prior wildlife utilization, rainfall, forage production, intensity of livestock management, and condition of soils. Livestock

numbers would be adjusted for resource protection during drought or if production levels are lower than expected. Capacity takes into account the forage needs of wildlife.

- 4) Use fencing, livestock trailing, control of waters, and cattleguards to manage the distribution of livestock grazing and utilization of upland native species, to avoid meadows and riparian areas, and to increase livestock control in sensitive areas. All proposed fences are four-strand barbed with smooth bottom wire, unless otherwise noted. Responsibility for structures is indicated in parentheses (X) and in Appendix B. Specifically we propose to:
  - a) Construct gap fencing across Yeager Canyon at suitable locations up and downstream of the 96 Road crossing, with a cattleguard and wing fences, to split the pasture into east and west pastures, making 2 pastures from one. These gap fences would tie into bluffs and would exclude livestock from access to Yeager Canyon from FR96 and would be considered critical. Drift fences would also be constructed at points where livestock may access the canyon. (FS/Permittee partner)
  - b) Construct a drift fence along Yeager Canyon in Forest Service Pasture (0.3 mile). (FS/Permittee partner)
  - c) Eliminate access to Leonard Canyon in the Dines Pasture with 1.6 miles of fence. (Permittee)
  - d) Create a new pasture from the portion of Knolls Pasture north of Buck Springs by constructing 0.8 mile of fence along Leonard Canyon and 1.9 miles of fence along the north side of Buck Springs Canyon (becomes North Knolls Pasture). The remainder of the Knolls Pasture would be rested. (Permittee)
  - e) Complete the fence at Turkey Pen to control livestock movement between North and South Battleground Pastures (0.1 mile). (FS/Permittee partner)
  - f) Construct a 3.2-mile fence along south side of East Clear Creek in McCarty Pasture to control livestock access; tie the fence into Jones Crossing Fence. (Permittee) Reconstruct the north fence along the boundary of McCarty Pasture that serves as a lane to access the northern portion of North Battleground Pasture north of the Reservoir. (FS/Permittee partner)
  - g) Construct a drift fence to funnel livestock away from General Springs (0.1 mile). (FS/Permittee partner)
  - h) Construct a temporary electric fence at General Springs Cabin to keep livestock away from sensitive areas when livestock are in the South Battleground Pasture. Permittee must construct this fence before using the pasture. (Permittee)
  - i) Construct a 0.5 mile division fence and a cattleguard in the South Pinchot Pasture from East Bear Canyon to the riparian pasture at Merritt to allow use of the northern

portion of the pasture. The portion south of this fence and between Bear Canyon and East Bear Canyon would not be used by livestock. (Permittee)

- j) Establish livestock exclosures to promote formation of meadow sponge effect around Fred Haight Springs (7 ac). Use exclosures to monitor forage use by livestock. Construct pipe and sucker rod exclosures around Pinchot and Aspen Springs. (FS)
  - k) Build 0.8 miles of fence from Aspen Pasture to Bear Canyon to create a small exclosure in Houston Draw north of the Aspen Horse Pasture (FS/P partner). Construct a livestock exclosure around upper Houston Draw south of the Aspen Horse Pasture (1.4 miles, Permittee). Take the Aspen Horse Pasture out of the rotation from cattle grazing, and construct a fence (holding pasture 0.8 miles FS/P partner) to create a horse pasture in very south of North Pinchot pasture. The corrals at Aspen Springs can be used for horses only.
  - l) Establish a 90 acre livestock exclosure adjacent to the McClintock Springs elk exclosure. Construct a drift fence at side draw to Dane Canyon in North McClintock Pasture. Trail livestock into the pasture on the U-Bar Trail and use temporary fences and riders to ensure that livestock do not wander up or down-canyon. Or ship livestock in and out of the pasture. (permittee)
  - m) The Forest Service, in partnership with the Arizona Game and Fish Department, maintains existing elk exclosures (Buck Springs, Houston Draw, Merritt Draw, General Springs, McClintock Springs, Kinder Draw).
  - n) Up to two corrals, three waterlots, and two drylots may be constructed or reconstructed to facilitate loading, unloading, and gathering of livestock. (FS/P partner)
- 5) Manage livestock and wildlife to achieve maximum site-specific utilization levels of 35% in pastures with access to secondary drainages (Moonshine, North Knolls, Burn, Horse, Dines, North Pinchot, South Battleground, North, North Battleground, McCarty) and in Mexican spotted owl areas, and maximum levels of 45% in upland pastures with no riparian concerns (North Jumbo, South Jumbo) and outside of Mexican spotted owl areas. An increase of 5% utilization may be allowed during years of above average precipitation. In Alternative G, site-specific utilization levels were increased because the year of rest will be sufficient to allow for plant recovery with the higher utilization rate. These site-specific current levels were reviewed and approved through consultation with the US Fish and Wildlife Service. Higher utilization of non-native species such as orchard grass would be allowed to facilitate replacement with diverse native vegetation.
- 6) A small section of one level 3 road would be closed where a new fence crosses the road. A total of 0.2 miles would be closed on Forest Road 9713G.
- 7) Implement all applicable mitigation measures through AOIs.

- 8) Maintain existing and new improvements as needed.

### **Soils and Vegetation**

- 1) Manage ungulates to maintain vegetative ground cover in the uplands. Throughout the allotment, manage for increased utilization levels on non-native species such as orchard-grass to reduce vigor and facilitate replacement of non-native grasses with native grasses, forbs, and shrubs.
- 2) Precommercially thin approximately 200 acres of dense seedling/sapling/pole stands to allow for ease of driving livestock along FR137 in the Horse and Moonshine Pastures, and in the Burn and North Battleground Pastures.

### **Alternative K: Modified Herding (developed in response to Knight's comments to the DEIS)**

This alternative differs from Alternative D in the use of temporary fences instead of permanent fences in some areas. It relies heavily on herding of livestock to control access to sensitive areas such as headwater meadows and riparian areas, and all pastures may be used. Fences separating these pastures from those that would not be used would be regularly maintained, primarily boundary fences between the north and south pastures, and between South Battleground and South Pinchot Pastures (See Appendix A, Maps 1 and 5). If the permittee is unable to "herd" the cattle temporarily, livestock grazing would be restricted to certain pastures that have fewer headwater meadow and riparian area concerns.

Some new fences are proposed to exclude all livestock from critical spinedace locations and habitats, and to facilitate herding of the livestock. Other current fences not needed for spinedace protection or described in the previous paragraph, may not be maintained on a regular schedule, and may deteriorate. A high number of waterlots, corrals, and training pastures are proposed to facilitate control of livestock, but all may not be constructed. No pastures would be split. Herding of livestock is expected to improve livestock distribution and reduce problems of over- and under-utilization. Appendix B lists the proposed improvements and shows which must be in place prior to livestock use of the pastures. The permittee and U.S Forest Service would share in the costs of all improvements.

### **Livestock Grazing**

- 1) Reissue grazing permit for up to 780 cow/calf pairs (equivalent to 1114 yearlings, or 105% permitted numbers), and 8 horses.
- 2) Continue the deferred-rest-rotation grazing system, with pastures deferred on a yearly basis and season of use from May 15 to October 15 allowing for plant maintenance needs. When conditions are suitable, allow entry before May 15th so that livestock can utilize native grasses in the northern pastures, particularly the fescue, while the plants are still green, growing, and palatable. The pastures adjacent

to the Rim would not be grazed until range readiness allows, as these pastures tend to green-up later than the northern pastures.

- 3) Collect additional forage production and utilization data by pasture to ensure that permitted numbers continue to be within carrying capacity. Adjust annual numbers to resources through the AOI. Variables that are used to set annual stocking rates include threatened and endangered species concerns, prior wildlife utilization, rainfall, forage production, control of livestock, and depth of soils. Lower numbers would be set for resource protection during drought or if production levels are lower than expected. Capacity takes into account the forage needs of wildlife.
- 4) Use herding of livestock as the primary means to manage the distribution of livestock grazing and utilization of upland native species, to avoid meadows and riparian areas, and to increase livestock control in sensitive areas. Use minimal fencing, waters, and cattleguards to tighten control in highly sensitive areas. Most proposed fences are four-strand barbed with a smooth bottom wire, with temporary fences used in specific areas. Specifically we propose to:
  - a. Eliminate access to Leonard Canyon in the Dines Pasture with 1.6 miles of fence.
  - b. Annually, construct a temporary drift fence along Yeagar Canyon (0.3 miles) to create the Forest Service Pasture and to keep livestock out of Yeagar Canyon.
  - c. Eliminate livestock access to spinedace habitat in the Knolls Pasture by constructing 0.8 miles of fence along Leonard Canyon, 1.9 miles of fence north of Buck Springs Canyon,. Use herding and low stress management techniques to keep livestock out of the southern 1/2 of the pasture, south of West Leonard Canyon. If herding of livestock is successful in controlling livestock without fences, and adequate forage is available, the southern 1/2 of Knolls Pasture may be used in the future.
  - d. Complete fence at Turkey Pen to control livestock movement between North and South Battleground pastures (0.1 mile).
  - e. Reconstruct the north fence along the boundary of McCarty Pasture that serves as a lane to access the northern portion of North Battleground Pasture north of the Reservoir. Use herding and riders to drive livestock from Jumbo Pastures along this lane.
  - f. Construct a temporary electric fence (0.1 mile drift fence) in South Battleground Pasture to funnel livestock away from General Springs Cabin and sensitive areas.



- g. Construct temporary drift fences at entry trails to meadows to reduce access by livestock at West Bear Meadow (0.6) and Upper Barbershop Canyon (0.5). Construct livestock exclosures at Holder Meadow (130 ac), upper Houston Draw (160 ac), and Bill McClintock Meadow (150 ac). Construct a 0.1 acre pipe and sucker rod exclosure around Aspen Springs.
- h. Maintain existing and proposed exclosures (Buck Springs, Houston Draw, Merritt Draw, General Springs, McClintock Springs) for monitoring elk and livestock use of headwater meadows and riparian areas. (FS and AGFD responsibility)
- i. Use cowboys and dogs to "herd" the cattle in one or more units as a tool to control livestock movements and to keep them out of sensitive riparian areas, sensitive drainages, and headwater meadows. Move the livestock as needed to avoid sensitive areas, limit utilization on individual plants, and obtain more even grazing patterns. However, livestock may pass through riparian areas and meadows if needed to achieve herding objectives. Allow the use of lead herd animals to facilitate livestock movements.
- j. Establish small "training pastures" to be used early in the season to train the livestock as a herding unit. These pastures would be approximately 300 acres each, and would be constructed in the North Jumbo (2), North Pinchot (at south end), and Burn (NE corner) Pastures (2.8 miles of fence). Limestone, South Jumbo, and Dines Pastures may also be used as training areas, though Dines would not be used in years of low precipitation. Utilization may be higher in the training areas, with allowable use up to 60%, except Dines Pasture which has a maximum utilization of 40%. Areas must have 22 months of rest before reuse. One of the training pastures may be used for a horse pasture.
- k. If for any reason, the permittee is temporarily unable to "herd" the cattle, livestock grazing strategy would revert to current method of deferred-rest-rotation and would be restricted to the following pastures: North, North Pinchot, North piece of Knolls (north of Buck Springs Canyon), North and South Jumbo, North Battleground, McCarty, South Battleground, Moonshine, Horse, Dines, and Burn Pastures. If herding is effective as a strategy, but is ineffective in a particular pasture, that pasture would be taken out of the rotation for a year, through the AOI.
- l. Some of the existing fences must be maintained, specifically between the northern and southern pastures, and exterior allotment fences, between Knolls and McClintock Pastures, and between South Battleground and South Pinchot.

- m. Up to three corrals, twelve waterlots, and six drylots or small holding pastures may be constructed or reconstructed to facilitate loading, unloading, and gathering of livestock.
  - n. The following trails may be used, maintained, and improved, with approval of the Forest Service: East Clear Creek crossing, the trail at the mouth of Miller Canyon, the trail that crosses Miller Canyon in T13N, R10E, Section 13, the use of FR95 to cross Houston Draw and Bear Canyon, the use of FR300 to cross General Springs, and a second crossing of General Springs in T13N, R11E, Section 30, U Bar Trail and Barbershop Trail.
- 5) Manage livestock to achieve maximum site-specific utilization levels of 25% (includes wildlife use) on headwater native species meadows, 30% in secondary drainages and in Mexican spotted owl areas and northern goshawk PFAs. If levels are above these levels in sensitive areas due solely to wildlife, livestock may remain in the pasture, as long as they can be kept out of the sensitive areas and do not contribute to utilization in those areas. Utilization levels of 40% are allowable in other areas of all pastures. An increase of 5% in utilization may be allowed during years of above average precipitation. Higher utilization of non-native species such as orchard grass would be allowed to facilitate replacement with diverse native vegetation.
  - 6) Small sections of several level 3 roads would be closed where new fences cross the roads. A total of 1.2 miles would be closed on the following Forest Roads: 9713G, 9737R, 9714E.
  - 7) Implement all applicable mitigation through AOIs.
  - 8) Maintain existing and new improvements as needed.

## **Soils and Vegetation**

- 1) Manage ungulates to maintain vegetative ground cover in the uplands. Throughout the allotment, manage for increased utilization levels on non-native species such as orchard-grass to reduce vigor and facilitate replacement of non-native grasses with native grasses, forbs, and shrubs. Manage areas dominated by Arizona fescue to retain plant vigor and health and to increase diversity of other native species in all pastures, especially the North, North Battleground, North Pinchot, and McCarty Pastures.
- 2) Precommercially thin approximately 1,000 acres of dense seedling/sapling/pole stands to allow for ease of driving livestock along FR137 in the Horse and Moonshine Pastures, and for gathering livestock in the Burn and North Battleground Pastures.

## **MITIGATION MEASURES**

The following mitigation measures are required for the implementation of all alternatives that allow livestock grazing (Alternatives B-G).

### **General**

- 1) Remove unnecessary fences before they deteriorate to the point where they become hazards to people or wildlife. This is also required for the No Grazing alternative.
- 2) Construct all new fences along potentially eligible Wild and Scenic River sections of East Clear Creek, Barbershop Canyon, and Leonard Canyon out of sight of the drainage bottoms, where feasible. No actions would be taken that would degrade the outstanding remarkable characteristics of these areas.
- 3) No actions would be taken that would degrade the roadless quality of Inventoried Roadless Areas.

### **Wildlife**

- 1) Construct new fences, waterlots, drylots, corrals, cattleguards, or other improvements; and implement road closures, within Mexican Spotted Owl PACs, in goshawk nest stands, and within ¼ mile of peregrine eyries, outside of the breeding season (construction can occur between September 1 – February 29) or after non-nesting has been determined.
- 2) Do not use salt or minerals in Mexican spotted owl PACS, goshawk nest stands, or within ½ mile of peregrine eyries.
- 3) Do not gather livestock, or brand within Mexican spotted owl PACS, goshawk nest stands, or within ½ mile of peregrine eyries.
- 4) If a bald eagle roost is located, do not construct structures within ¼ mile during the times when eagles are present on the allotment (November – March).
- 5) Survey potential southwestern willow flycatcher habitat. If potential habitat becomes suitable, surveys would be conducted for flycatcher occupancy annually. If these sites are determined to have breeding flycatchers within 5 miles of the allotment, Coconino National Forest would reinitiate consultation and incorporate specific Reasonable and Prudent Measures.
- 6) Survey earthen tanks for Chiricahua leopard frogs prior to maintenance activities. Maintain stock ponds during the fall or winter, if possible, to avoid impacts to adult frogs tadpoles, and eggs. Maintain when dry or nearly dry.

- 7) Waterlots would be at least five acres in size. Wire open waterlots and drylots, when not in use.
- 8) Modify elk exclosures to allow entry by turkeys and medium-sized mammals.
- 9) Maintain existing fences to meet wildlife specifications.

### **Noxious weeds**

- 1) Evaluate each activity prior to implementation to determine risk for introducing or expanding noxious weed populations and assign measures to reduce this risk.
- 2) Clean equipment (dozers, tractors, chainsaws) before and after use on the allotment, when known to have been in areas infested with noxious weeds. Clean equipment before moving to a new area within the allotment when known to have been in infested areas.
- 3) Avoid areas infested with noxious weeds, especially when using equipment.

### **Cultural Resources**

- 1) In order to insure the *status quo*, management practices that tend to concentrate livestock (and most likely wild ungulates) such as placement of salt, haying, construction of waters, etc., would be located away from cultural resources. This measure would be included in each year's Annual Operating Instructions and would be a discussion at the annual meeting with the permittee.
- 2) Ground disturbing activities such as construction of improvements (tanks, new cattleguards, harrowing and seeding, etc.) and watershed maintenance activities would require separate archaeological surveys and clearances prior to implementation. These activities would be managed to avoid sites to ensure there is no effect.
- 3) Maintenance, reconstruction, or replacement of existing facilities, such as existing cattleguards, gates, fences, and culverts, are undertakings that do not have the potential to cause effects on historic properties as long as the work does not involve additional ground disturbance. The Forest, Zone, or District Archaeologist would be notified of these activities prior to implementation to confirm that there is no potential to cause effects on historic properties. Any new fence construction, fence relocation, or clearing for fence realignment, whether by hand or mechanical means, requires separate evaluation and documentation from the Forest Archaeologist to determine if there is potential for effects on historic properties or whether separate clearances or surveys are needed.

## **Aquatic Resources**

- 1) Insure that any and all newly proposed and existing critical fences required for the protection of spinedace fencing are constructed/maintained prior to pasture use by livestock (identified in Appendix B).
- 2) Prior to use of the Miller / ECC confluence crossing, a fisheries biologist would survey for the presence of any sensitive fish species, and evaluate fish habitat conditions. If spinedace, or any other sensitive fish species are located at or within the vicinity of the crossing (1/4 mile up or downstream of the confluence \ crossing), the crossing would not be used. In the absence of sensitive fish species, the crossing could be used with the following stipulations:

Protect the drainages from trampling by erecting a temporary fence across the mouth of Miller Canyon, and across ECC immediately upstream from the confluence with Miller Canyon. These fences and the use of riders would help in controlling livestock through the crossing, and direct their travel up and out of the drainage.

- 3) Prior to use of other stream course crossings, a fisheries biologist would survey for the presence of any sensitive fish species, and evaluate fish habitat conditions. If spinedace, or any other sensitive fish species are located at or within the vicinity of the crossing, measures must be taken to protect sensitive fish and fish habitat. Use the following protective measures regardless of whether fish are present or not:
  - a. Protect the drainages from trampling by erecting temporary fences to help in controlling livestock through the crossing, and direct their travel up and out of the drainage.
  - b. Use riders to ensure that livestock would not be allowed to move up or down drainage, or be allowed to mill around within the vicinity of the drainage crossing.

## **Soil and Water**

- 1) Soil and water concerns are mitigated through the application of site-specific Best Management Practices. Appendix D displays the site-specific improvements for the Buck Springs Allotment by alternative that mitigate the negative effects of livestock grazing.

## **DESCRIPTION OF ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY**

Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). Public comments received in response to

the Proposed Action provided suggestions for alternative methods for achieving the purpose and need. Some of these alternatives may have been outside the scope of managing livestock management on the Buck Springs Range allotment, duplicative of the alternatives considered in detail, or determined to be components that would cause unnecessary environmental harm. Therefore, three alternatives were considered, but dismissed from detailed consideration for reasons summarized below.

### **Alternative H: Maximum Range Improvements**

This alternative would use extensive fencing with cattleguards, corrals, and waterlots to gain greater control over the distribution and duration of grazing, and for protection of riparian drainages and headwater meadows. Currently there are 22 pastures. Several pasture splits requiring 58 miles of new fence would result in a total of 35 pastures.

#### **Rationale for Eliminating the Alternative**

The purpose for this alternative was to provide strict control over livestock distribution and forage utilization through structures, while eliminating livestock access to sensitive riparian areas. Early analysis indicated that over 58 miles of fence would be required, with numerous cattleguards, waterlots, and drylots, for this alternative. This amount of additional fencing would create substantial new hazards for many wildlife species, and the financial reality of such large expenditures is economically impractical. Control over livestock distribution and forage utilization is also covered in alternatives A, D, E, and F.

The concern over access to sensitive habitats for TES species is addressed in various ways in Alternatives A, C, D E, F, and G. This alternative would not increase protection for TES species habitats more than Alternatives C, E, or G. Therefore, it was felt that the primary issue driving this alternative was addressed in other alternatives, the amount of additional fencing would cause unnecessary harm to wildlife, and Alternative H would be economically impractical.

### **Alternative I: Northern Pasture Emphasis with Maximum Range Improvements**

This alternative restricted livestock to the northern pastures of the allotment, while incorporating the maximum number of pasture splits for strict physical control of livestock distribution. Major pastures would be split, requiring 38 miles of new fence and resulting in a total of 30 pastures. Movement between pastures would require using major roads, and must be executed with tight control over the livestock.

#### **Rationale for Eliminating the Alternative**

Early analysis indicated that over 38 miles of fence would be required to implement this alternative. Four large pastures (about 35% of the area) would be removed from the allotment landbase. This amount of additional fencing would create substantial new hazards for many wildlife species, and the financial reality of such large expenditures for a drastic

reduction in livestock capacity would be economically impractical. Control over livestock distribution and forage utilization is also covered in Alternatives A, D, E, and F.

The issue of eliminating livestock access to headwater meadows through removal of the southern pastures from the landbase is duplicative of Alternatives E and G. The concern over access to other sensitive habitats for TES species is addressed in Alternatives A, D, E, F, and G. This alternative does not increase protection for TES species habitats more than other alternatives. Therefore, it was felt that this alternative was duplicative of other alternatives, the amount of additional fencing would cause unnecessary harm to wildlife, and the alternative would be economically impractical.

### **Alternative J: Alternative Submitted by Permittee**

The permittee for the Buck Springs Range Allotment submitted this alternative with an emphasis on herding and low stress management techniques, minimal use of fencing to control livestock, and the continuation of current permitted numbers.

### **Rationale for Eliminating the Alternative**

The Interdisciplinary Team assessed this alternative and determined that it would result in unnecessary environmental harm. The alternative does not provide adequate control over livestock for protection of riparian stream systems and the threatened Little Colorado spinedace. It relies on the herding of livestock, which has not been found to provide that have fewer headwater meadow and riparian area concerns.

The ID Team also assessed current permitted numbers in association with areas that would no longer be grazed. Over the past several years, riparian pastures and areas with wet meadows have been rested from grazing. Several of the alternatives remove pastures or additional acreage from the grazing landbase. Each alternative was evaluated for the number of livestock that could be supported by the available forage, taking wildlife and vegetation needs into consideration [#79]. Reductions in the number of acres that could be grazed under each alternative required a corresponding reduction in permitted numbers based on the amount of forage available on the remaining acres. The acres that would be grazed under most action alternatives would not support the current permitted numbers.

## **SUMMARY OF ALTERNATIVES**

The eight alternatives analyzed in detail exhibit a wide range of actions for the management of livestock on the allotment. Table 1 summarizes the actions proposed for each alternative.

The alternatives exhibit a wide range of actions that in turn have a wide range of effects on the physical, biological, social, and economic resources of the allotment. Table 2 summarizes the effects of the alternatives through the issues and units of measure. Carrying capacity has been shown to be adequate for the livestock numbers proposed in each alternative. A rest-rotation grazing system provides a year of rest for a year of livestock grazing in Alternatives F and G. While this system allows for plants to be rested from

livestock grazing, elk grazing would still occur and would likely remain high. Alternatives C, D, and E address the concerns for overgrazing on individual plants through herding and pasture splits that would even out grazing distribution.

**Table 1: Summary of the components of eight alternatives for management of livestock on the Buck Springs Range Allotment.**

Alternative Components	Alt. A No Graze	Alt. B No Change	Alt. C Proposed Action	Alt. D / K Herding	Alt. E Northern Pastures	Alt. F Rest- Rotation	Alt. G North Rest-Rot.
<b>Permitted Livestock (#cow/calf) or (#yearlings) and (#horses)</b>	0 0 0	746 1065 8	669 955 8	780 1114 8	531 758 8	E <sup>1</sup> / <sub>2</sub> /W <sup>1</sup> / <sub>2</sub> 356/407 508/581 8	E <sup>1</sup> / <sub>2</sub> /W <sup>1</sup> / <sub>2</sub> 250/393 357/561 8
<b>Grazing strategy</b>	None	Defer- Rest- rotation	Defer- Rest- rotation	Defer- Rest- rotation	Defer- Rest- rotation	Rest rotation	Rest rotation
<b>Acres in Rotation</b>	0	68,010	60,078	59,717	43,832	66,449	45,876
<b># livestock pastures</b>	0	23	24	25	23	29	22
<b>Current Fence (miles)</b>	90	90	90	90	90	90	90
<b>Proposed new permanent fence (mi)</b>	0	0	22	13.5/11.4	18	33	13.5
<b># cattleguards</b>	0	0	5	0	3	8	2
<b># corrals</b>	0	0	2	3	4	4	2
<b># waterlots</b>	0	0	3	12	6	7	3
<b># drylots</b>	0	0	1	6	2	3	2
<b>Pre-commercial Thinning (ac.)</b>	0	0	1,500	1,000	200	200	200
<b>Frog ponds</b>	0	0	10	6 / 0	3	8	0
<b>Miles of roads closed</b>	0	0	1.6	1.2	0.2	1.6	0.2

The economic analysis illustrates that five of the seven action alternatives provide for a positive benefit/cost ratio for the permittee, with Alternative B the most profitable and Alternative F the least profitable. Though Alternative B is the most profitable based on current management, it would likely result in the US Fish and Wildlife Service issuing a Jeopardy Opinion through the Endangered Species Act, which would require the removal of livestock from the allotment. Therefore, Alternative K would more likely be the most profitable for the permittee, followed closely by Alternative D. Alternatives C, E and G indicate a low positive benefit/cost ratio.



The results of the economic model point out the high costs for the Forest Service for all alternatives, including Alternative A: No Grazing. Alternative A has no benefit/cost ratio, since it would have no benefits. It has the lowest costs for the Forest Service. Alternative B with full permitted numbers, would have the best benefit/cost ratio (B/C ratio), but is likely to incur a Jeopardy Opinion through the Endangered Species Act and removal of all livestock from the allotment. The next best B/C ratio would be provided by Alternative E, followed by Alternatives G and K, then D. Alternatives C and F would incur much higher expenses for the Forest Service.

**Table 2: Summary of effects on the measures for eight alternatives for the management of livestock on the Buck Springs Range Allotment.**

Significant Issues Unit of Measure	Alt. A No Graze	Alt. B No Change	Alt. C Propose d Action	Alt. D Alt. K <sup>1</sup> Herding	Alt. E Northern Pastures	Alt. F <sup>2</sup> Rest- Rotation	Alt. G <sup>2</sup> North Rest- Rotation
<i>Carrying Capacity (Issue 1)</i>							
Permitted Livestock						E 1/2/W 1/2	E 1/2/W 1/2
(#cow/calf) or	0	746	669	780	531	356/407	250/393
(#yearlings)	0	1,065	955	1114	758	508/581	357/561
and (#horses)	0	8	8	8	8	8	8
<i>Grazing System and Plant Overuse (Issue 2)</i>							
Grazing strategy	None	Defer- Rest- rotation	Defer- Rest- rotation	Defer- Rest- rotation	Defer- Rest- rotation	Rest rotation	Rest rotation
<i>Economic Feasibility (Issue 3)</i>							
Grazing Fee (\$)	N/A	5,169	4,636	5,405	3,680	2,820	2723
Benefit/Cost (permittee)	N/A	1.94	1.19	1.33 1.36	0.89	0.65	1.17
Benefit/Cost (Forest Serv.)	N/A	0.16	0.09	0.13 0.13	0.14	0.07	0.13
Improvements				87,750			

<sup>1</sup> Alternatives D and K have the same effects to resources. The difference between the two is a difference between the use of permanent or temporary fences. Therefore, the only difference between the two alternatives will be the costs. In this table, there will be two values listed in the B/C ration section of the table. The top number in the table is the value for Alternative D, the bottom number is the value for Alternative K.

<sup>2</sup> Information in parentheses within the table conveys additional formation on the rest rotation strategy. See previous discussion for more information describing the effects of rest-rotation.

Significant Issues Unit of Measure	Alt. A No Graze	Alt. B No Change	Alt. C Propose d Action	Alt. D Alt. K <sup>1</sup> Herding	Alt. E Northern Pastures	Alt. F <sup>2</sup> Rest- Rotation	Alt. G <sup>2</sup> North Rest- Rotation
Costs - Permittee	0	0	80,500	80,500	121,100	134,700	87,350
<b><i>Threatened and Endangered Species Concerns (Issue 4)</i></b>							
<b><i>Meadow Acres Excluded (improved miles)</i></b>	412	234	394	368	412	394	412
<b>Meadow Acres Accessible</b>	0	178	18	44	0	18	0
<b>Riparian Drainages Excluded (improved miles)</b>	144	49	62	62	93	70	92
<b>Access to Riparian Drainages (impact miles)</b>	0	95	82	82	51	74 (1 in 2 years)	52 (1 in 2 years)
<b>Number of MSO PACs grazed</b>	0	21	21	21	20	21 (7 E/16 W)	20 (7 E/15 W)
<b>Structures in Goshawk PFAs</b>	0	0	0.25 mile fence	1 mile fence + waterlot	0	1.25 mile fence	0
<b>Number of Goshawk PFAs grazed</b>	0	6	6	6	4	5 (E ½) 2 (W ½)	3 (E ½) 1 (W ½)
<b>PFC streams Excluded (improved miles)</b>	94	41	48	46	58	48	59
<b>PFC streams Accessed (potential impact miles)</b>	0	53	46	49	36	46	36
<b>At-risk Stream Excluded (improved miles)</b>	34	4	7	9	21	9	21
<b>Non-functional</b>	14	3	7	7	12	12	12

Significant Issues Unit of Measure	Alt. A No Graze	Alt. B No Change	Alt. C Propose d Action	Alt. D Alt. K <sup>1</sup> Herding	Alt. E Northern Pastures	Alt. F <sup>2</sup> Rest- Rotation	Alt. G <sup>2</sup> North Rest- Rotation
<b>Streams Excluded (improved miles)</b>							
<b>Non-functional Streams Accessed (potential impact)</b>	0	11	7	7	2	2	2
<b>Amount of SWWF habitat Grazed</b>	None	None	None	None	None	None	None
<b>Protection for Mogollon thistle (describes impact)</b>	No grazing	Full grazing	Full grazing	Herding	No grazing	Grazed every other year	No grazing
<b>Number of Frog Ponds Improved</b>	0	0	10	6	3	8	0

## PREFERRED ALTERNATIVE

The Forest Service's preferred alternative is Alternative G. The Forest Service believes that this alternative best meets the purpose and need by coordinating management of the entire allotment and by greatly reducing impacts to watershed conditions, sensitive habitats, and threatened and endangered species. This alternative best meets the project objectives as outlined in Chapter 1 by allowing for livestock grazing on appropriate acres, improving soil and vegetative conditions, reducing dense thickets that impede livestock management on 200 acres, and improving riparian conditions and habitat for threatened and sensitive species. Additionally, the Forest Service believes that this alternative best meets the issues raised within the analysis which were outlined in Chapter 1. Alternative G protects the most miles of stream and habitat for riparian dependent species of any of the action alternatives, and still provides for some level of livestock grazing to meet the needs of the permittee.

